MCI Telecommunications Corporation

1801 Pennsylvania Avenue, NW
Washington, DC 20006

EX PARTE

September 4, 1997

William F. Caton
Acting Secretary
Federal Communications Commission
Washington, D.C. 20554

Re: Ex Parte Submission
Federal-State Joint Board on Universal Service; CC Docket No. 96-45
Forward-Looking Mechanism for High Cost Support for Non-Rural LECs; CC Docket No. 97-160

Dear Mr. Caton:

On September 3, 1997, Richard Clarke and Michael Lieberman of AT&T, Christine Antis and Mark Landis of PNR & Associates, Inc, and Mark Bryant and I, representing MCI, met with the FCC and Joint Board staff members listed at the end of this letter. Also attending the meeting were several representatives of the parties advocating the Benchmark Cost Proxy Model (BCPM). We gave the attached presentation, describing the development work being undertaken to further refine the customer location information reflected in the Hatfield model.

Respectfully submitted,

Chris Frentrup

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CC: FCC Staff

Anthony Bush, Vaikunth Gupta, Chuck Keller, Mark Kennet, Bob Loube, Bill Sharkey, Sheryl Todd, Natalie Wales

State Joint Board Staff

Lori Kenyon - Alaska PUC, David Dowds, Bridget Duff - Florida PSC, Barry Payne - Indiana OCC, Charlie Bolle - South Dakota PUC, Rowland Curry - Texas PUC

Customer Locations in the Hatfield Model

FCC Proxy Cost Model Workshop

September 3, 1997

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The Problem

- CBG has been the basic unit of analysis in both the Hatfield Model and BCPM
  - CBGs are reasonable for urban areas, because the land area they comprise is compact
  - But CBGs in rural areas may be so large that they do not permit accurate modeling of cable needed to serve customer locations
- Question: Can alternative means be devised to more accurately locate customers in rural areas?

HM - New Approach

- Data sources exist that permit geocoding of residence and business locations
- This permits plotting of customer locations within a wire center
- Does not rely on Census Bureau geographical definitions
- Because customer locations are identified by NPA-NXX, wire center boundaries in most cases can be determined by customer location (sub-CB level)

HM - New Approach

- Phase One
  - determine location and size of "customer clusters"
  - identify customers in outlying locations
  - proximity rules are used to define clusters
  - within clusters, identify "towns" and "roads" per current HM algorithms
- Phase Two
  - determine length of cable "strands" needed to reach all customer locations within Phase One clusters

Phase 1 algorithm

- Identify all customer locations within a wire center
- Using proximity rules, group locations into clusters
- Where number of customers in a cluster size exceeds 1800, subdivide cluster
- Where number of customers in a cluster is less than efficient minimum, combine clusters into "superclusters"
  - cable length and size to connect clusters within a supercluster is calculated
- Area occupied by "outliers" calculated to form basis of "road cable" calculation

Proximity Rules

- Clusters are based on a maximum point-to-point cutoff distance as a proxy for density measures
- Optimization objective is simultaneously to minimize cluster area and outlier distance

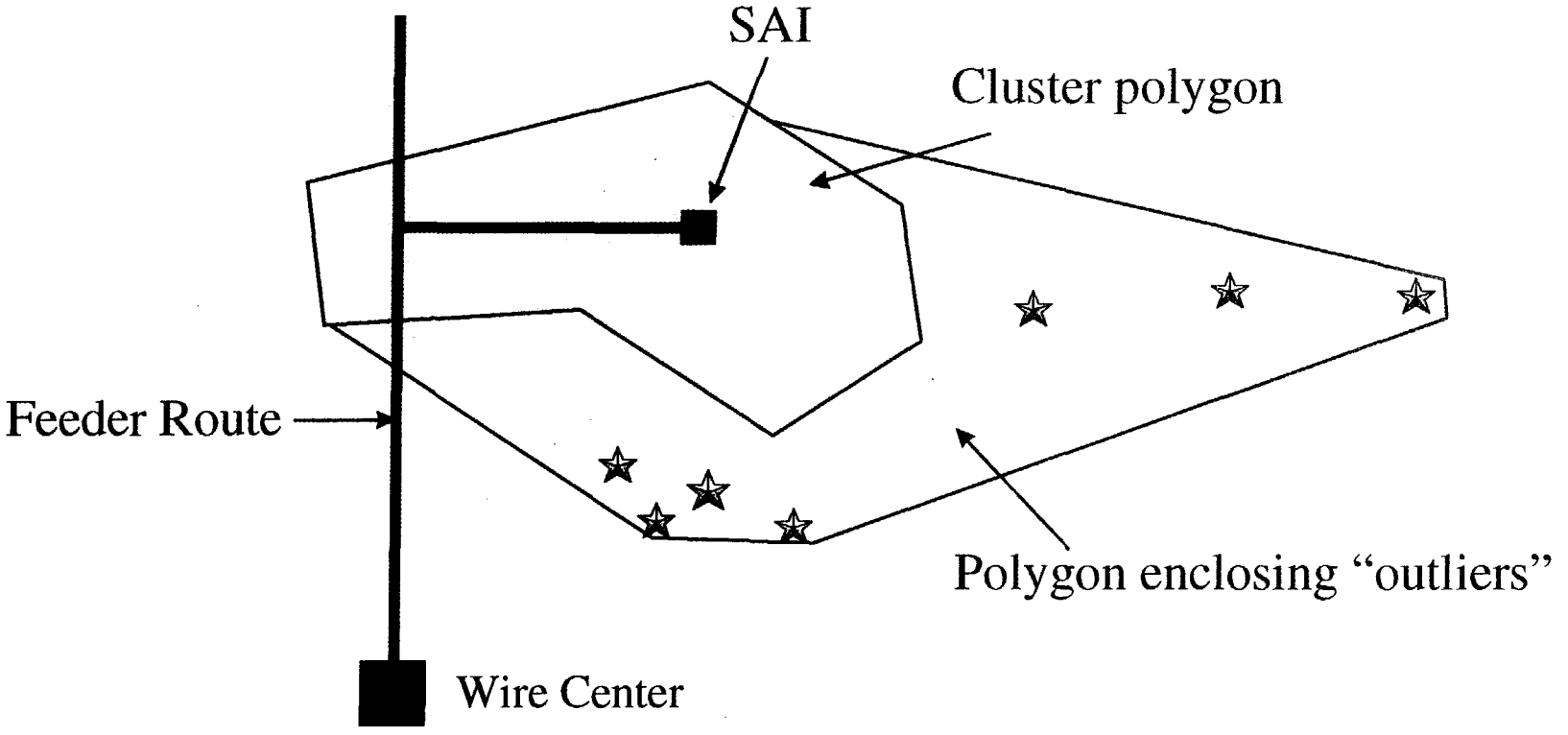
Proximity Rules (continued)

- Within a wire center, distance will vary as a result of differing population densities
- Clustering constraints include:
  - maintaining a maximum of 18Kft length
  - ideal service area has 200-400 lines
  - service area has a maximum of 1800 lines

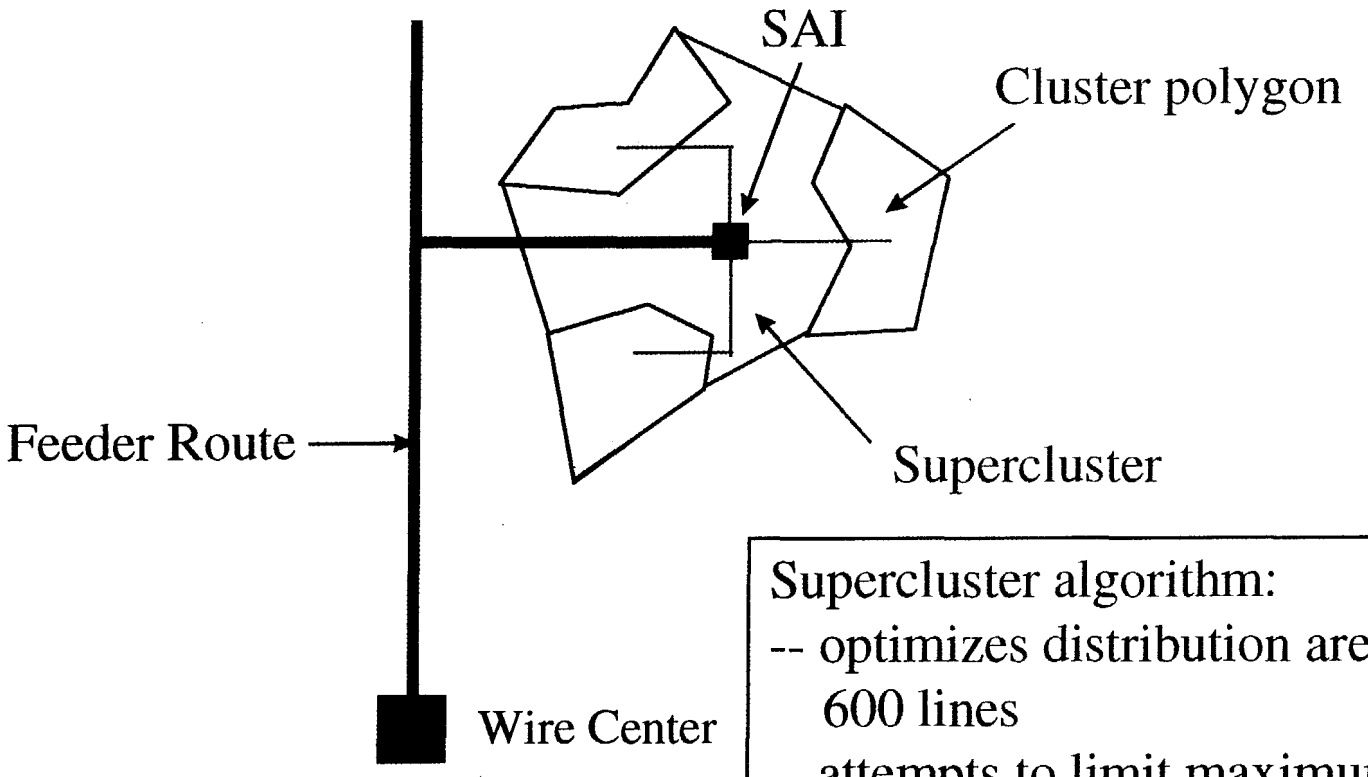
Phase 1 algorithm

- All information currently contained in HM4 database is reported for each cluster
- Cluster replaces CBG as unit of analysis in HM4
- Identification of customer location by CBG is retained to permit aggregation of results to the CBG level for reporting purposes

Phase 1 - example

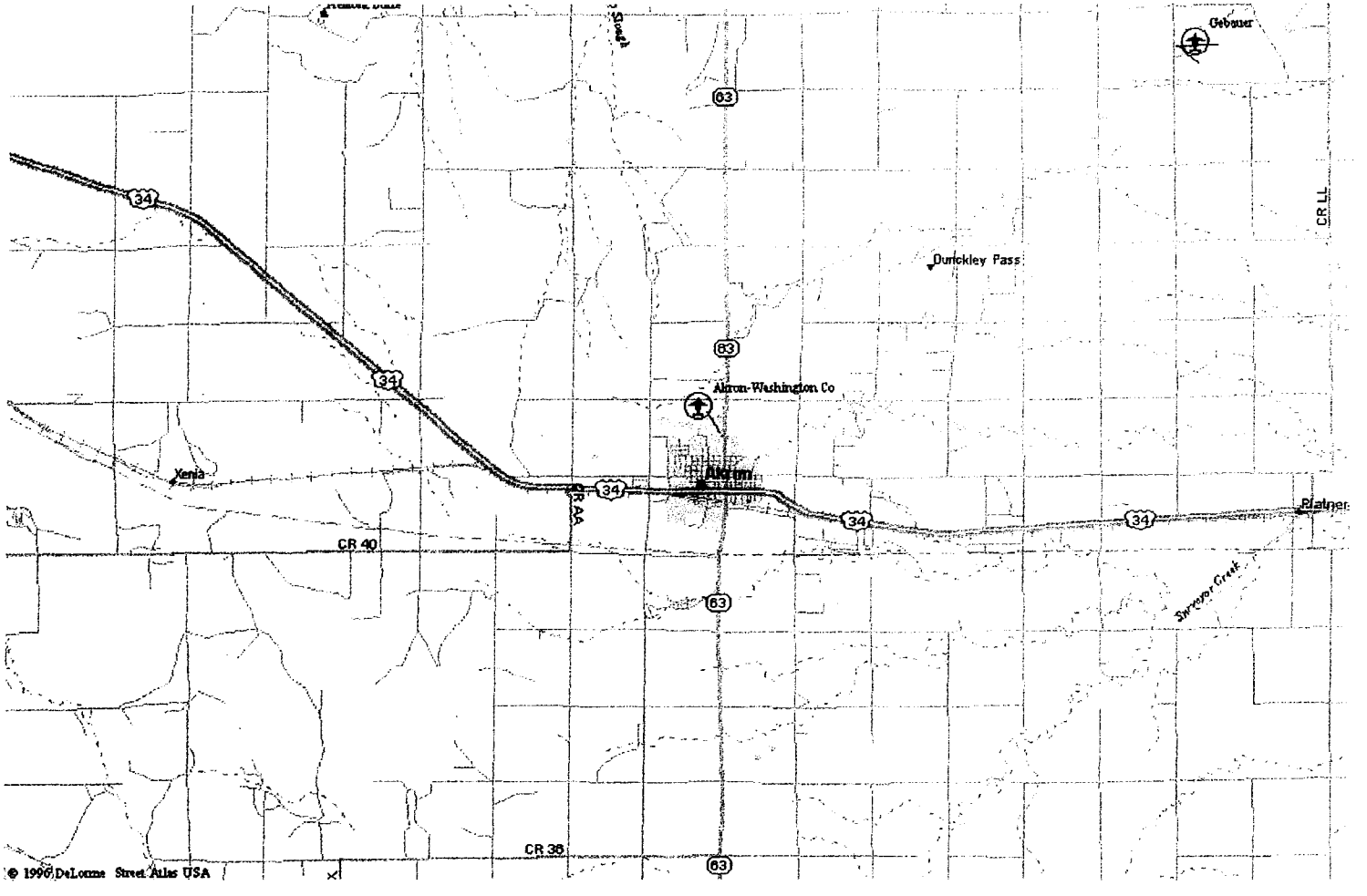


Phase 1 - "Superclusters"



Supercluster algorithm:
-- optimizes distribution area at 200-600 lines
-- attempts to limit maximum copper segment length to 18 Kft
-- calculates connecting cable length

Akron, Colorado



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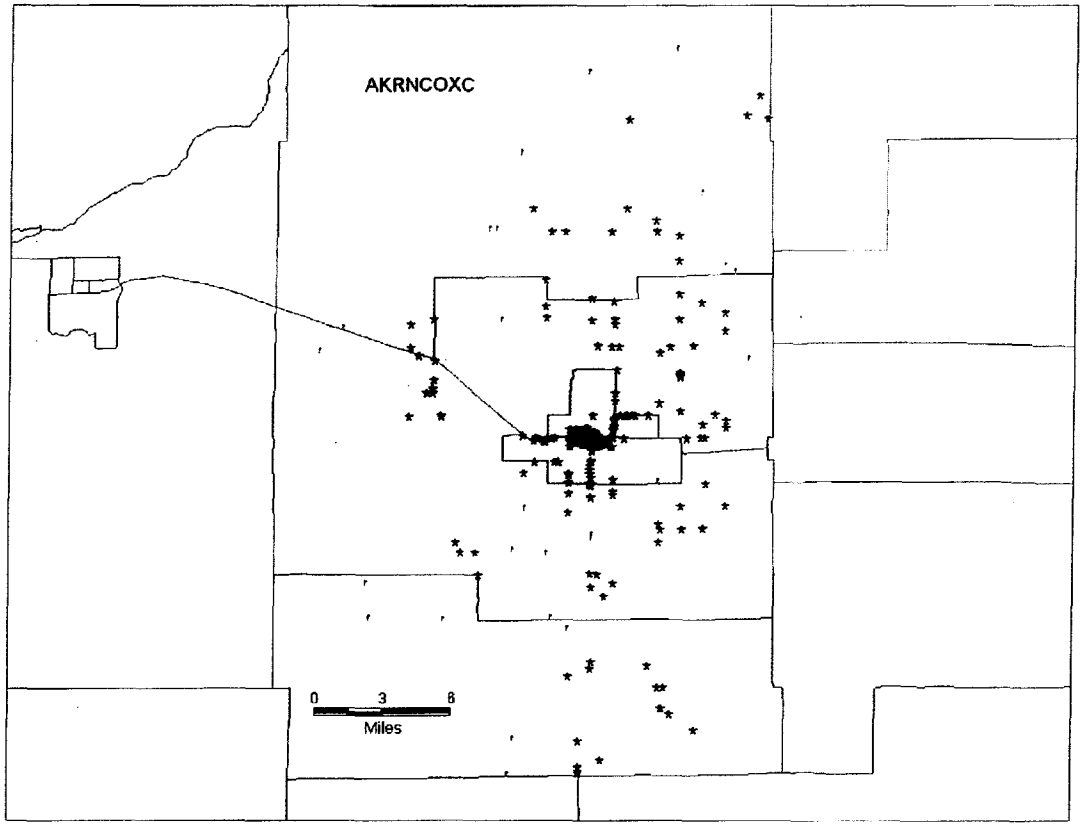
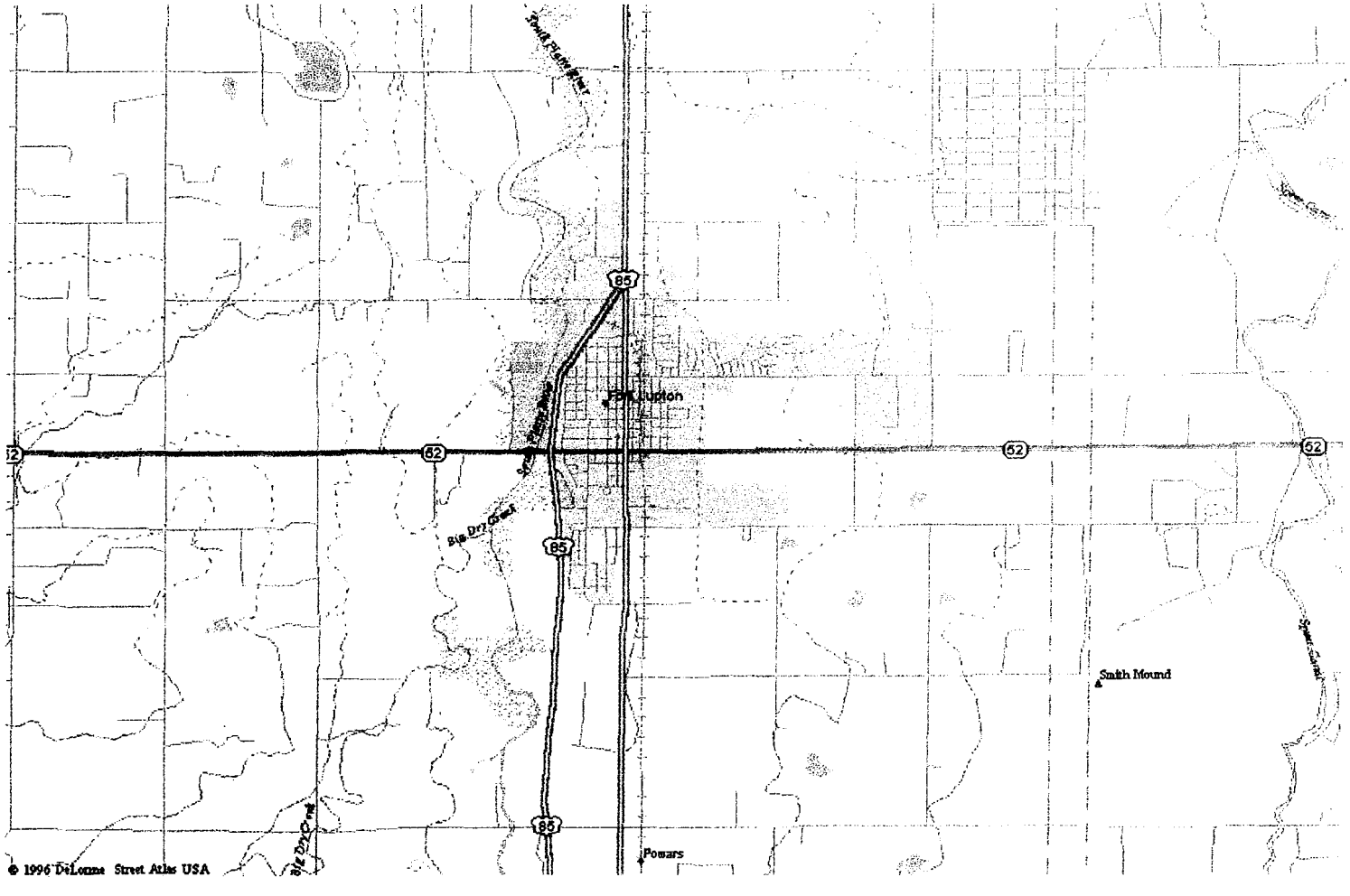
Akron, Colorado



Fort Lupton, Colorado



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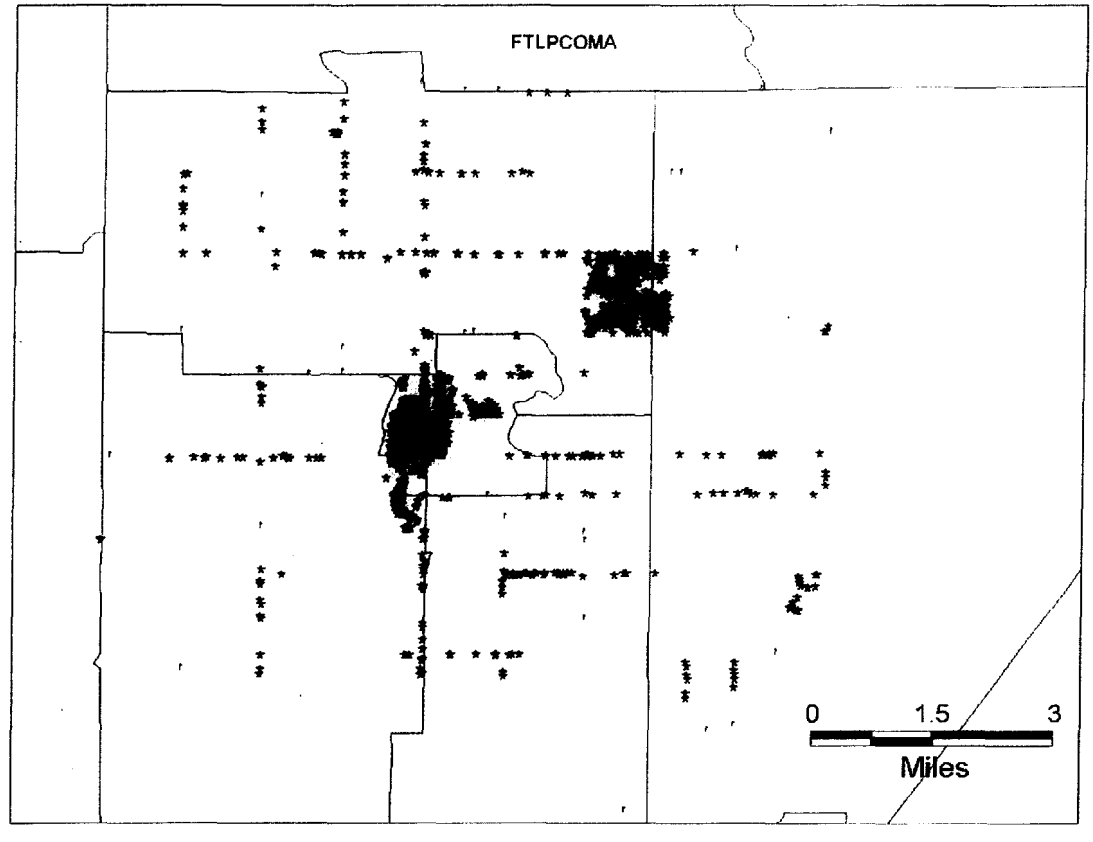
Fort Lupton, Colorado



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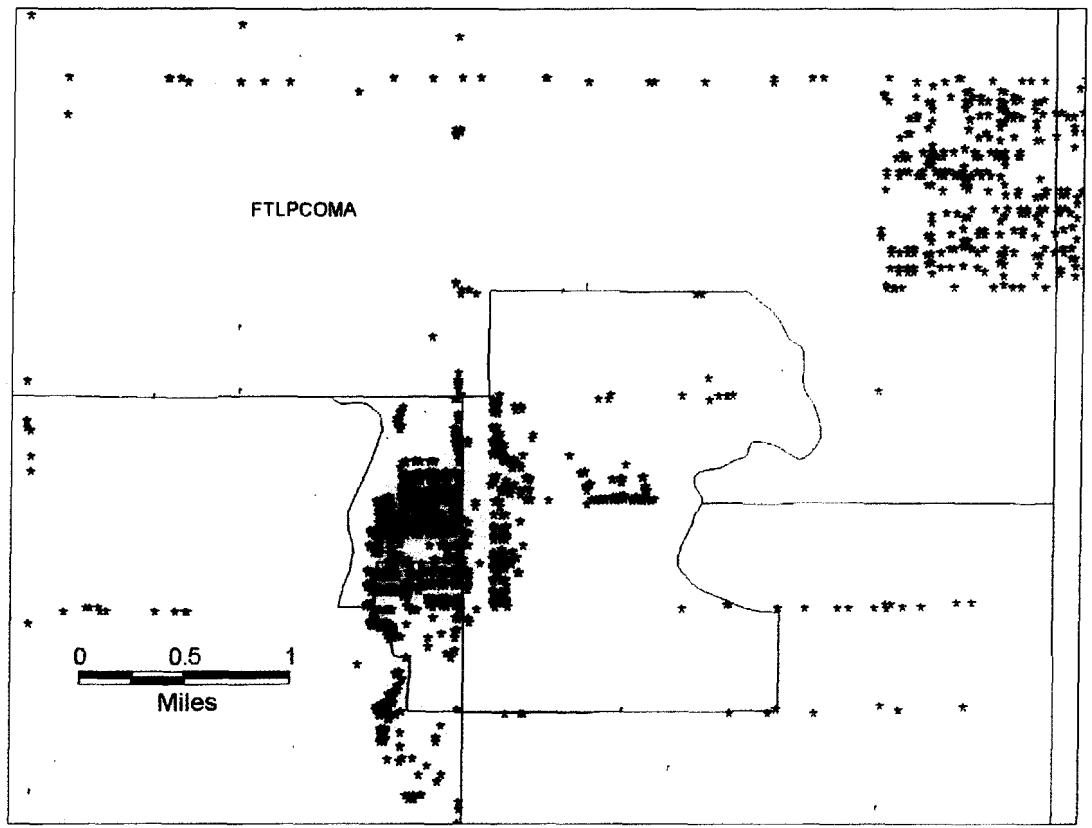
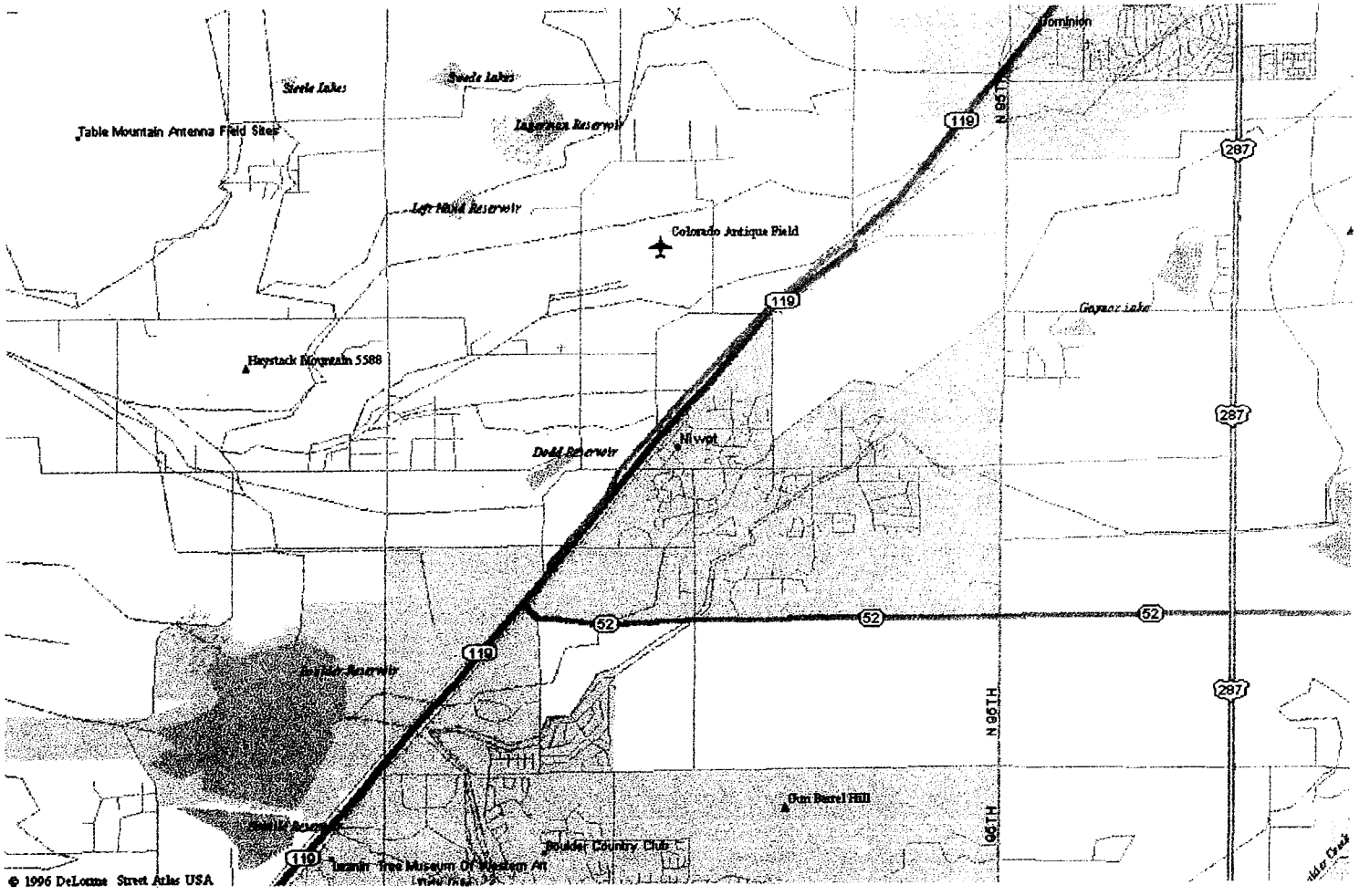
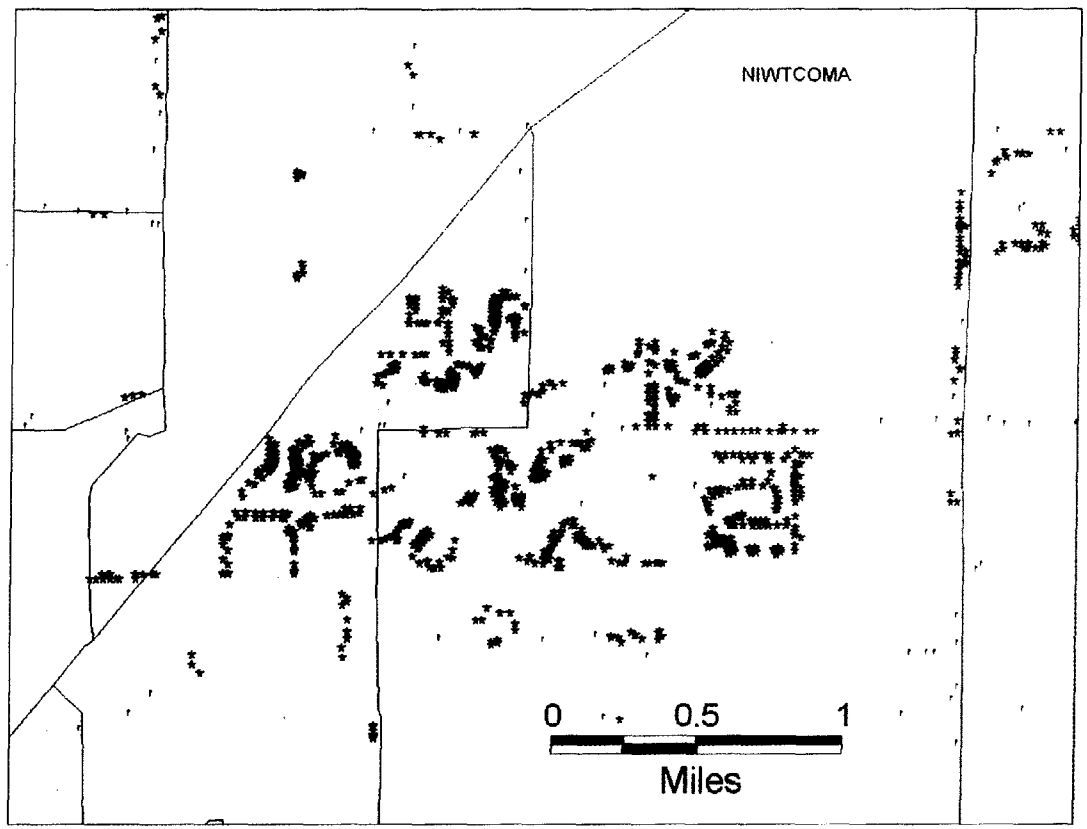
Fort Lupton, Colorado (detail)



Niwot, Colorado



Niwot, Colorado



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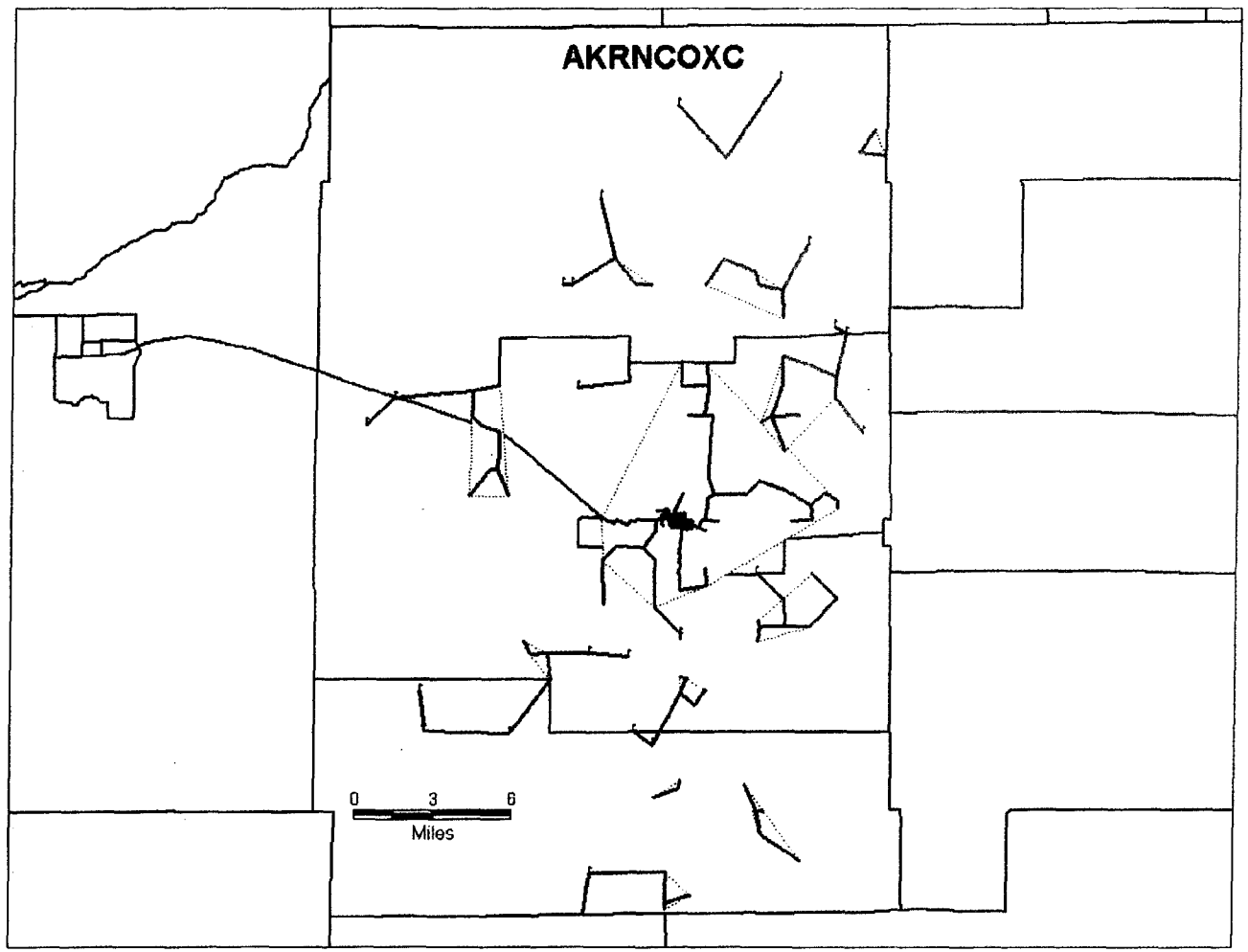
Phase 1 - Advantages

- Wire center boundaries are self-defining
- CBG boundaries no longer constrain distribution area definition
- Accurate placement of population clusters
- Accurate estimation of cluster and outlier land area

Phase 2 - Strand Mapping

- Within clusters, cable lengths necessary to connect all customer locations estimated (including outliers)
- SAI placed at centroid of cluster strands
- Would replace current distribution module calculation of cable lengths and sizes

Phase 2 - Akron, Colorado



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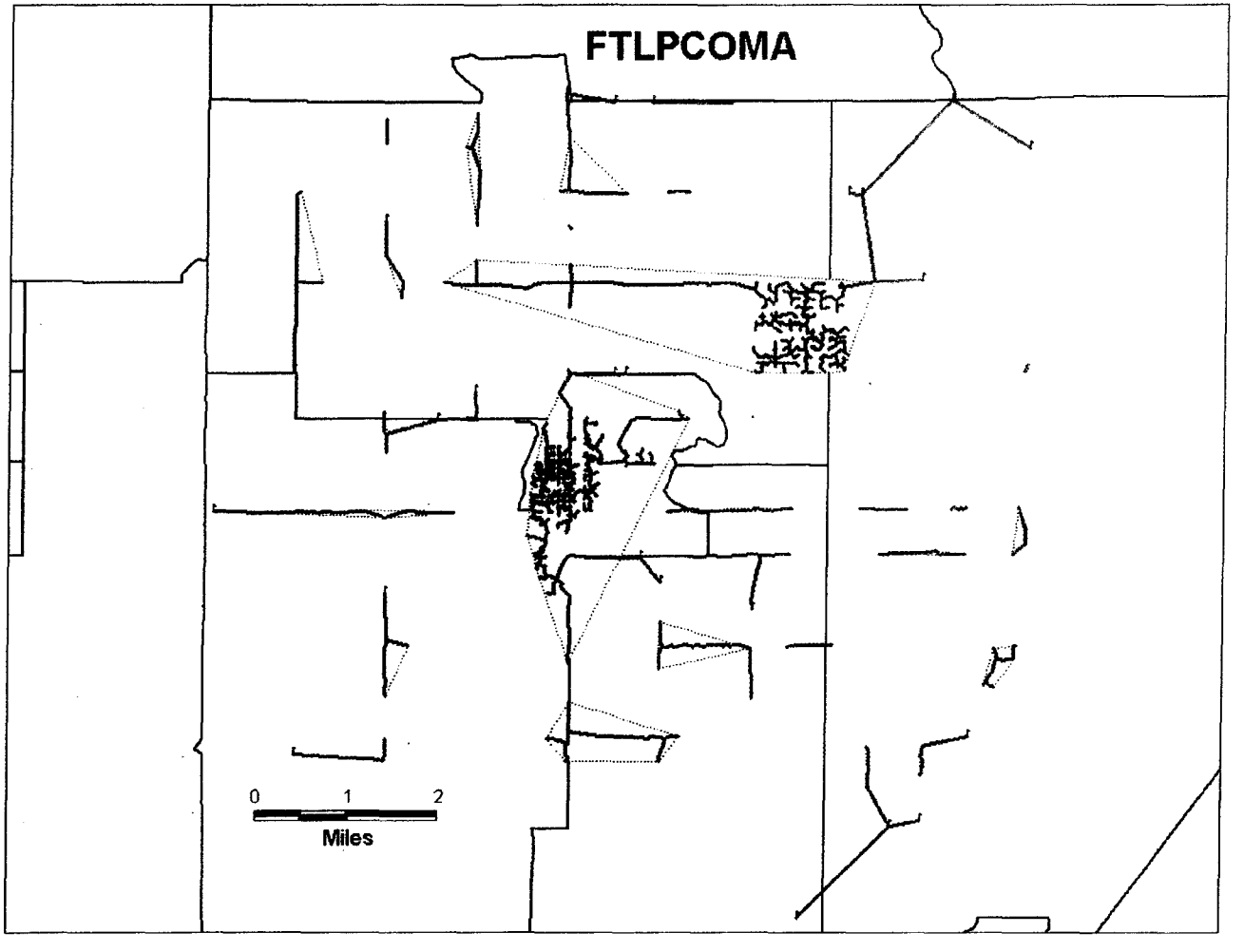
Phase 2 - Fort Lupton, Colorado



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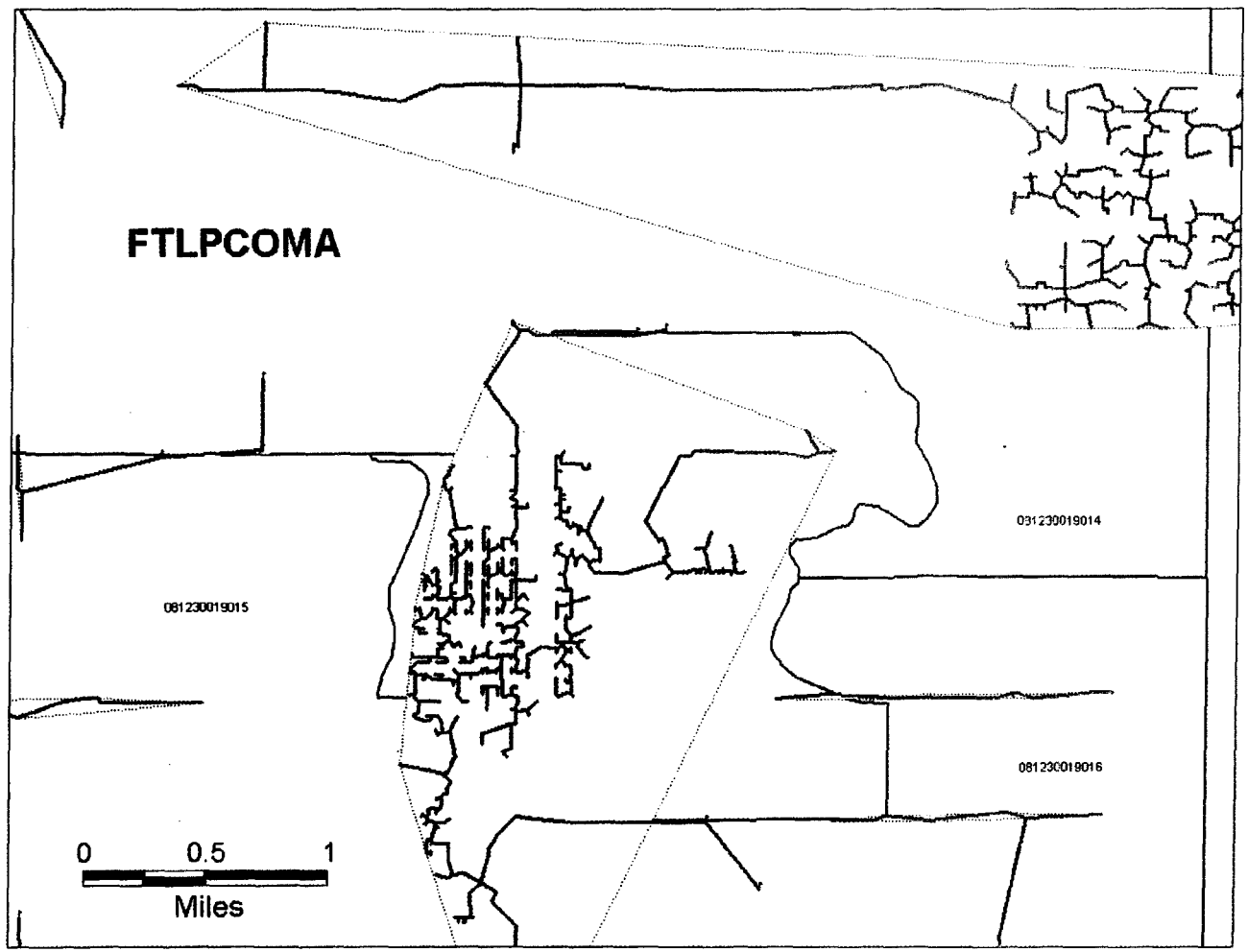
Phase 2 - Ft. Lupton, CO (detail)



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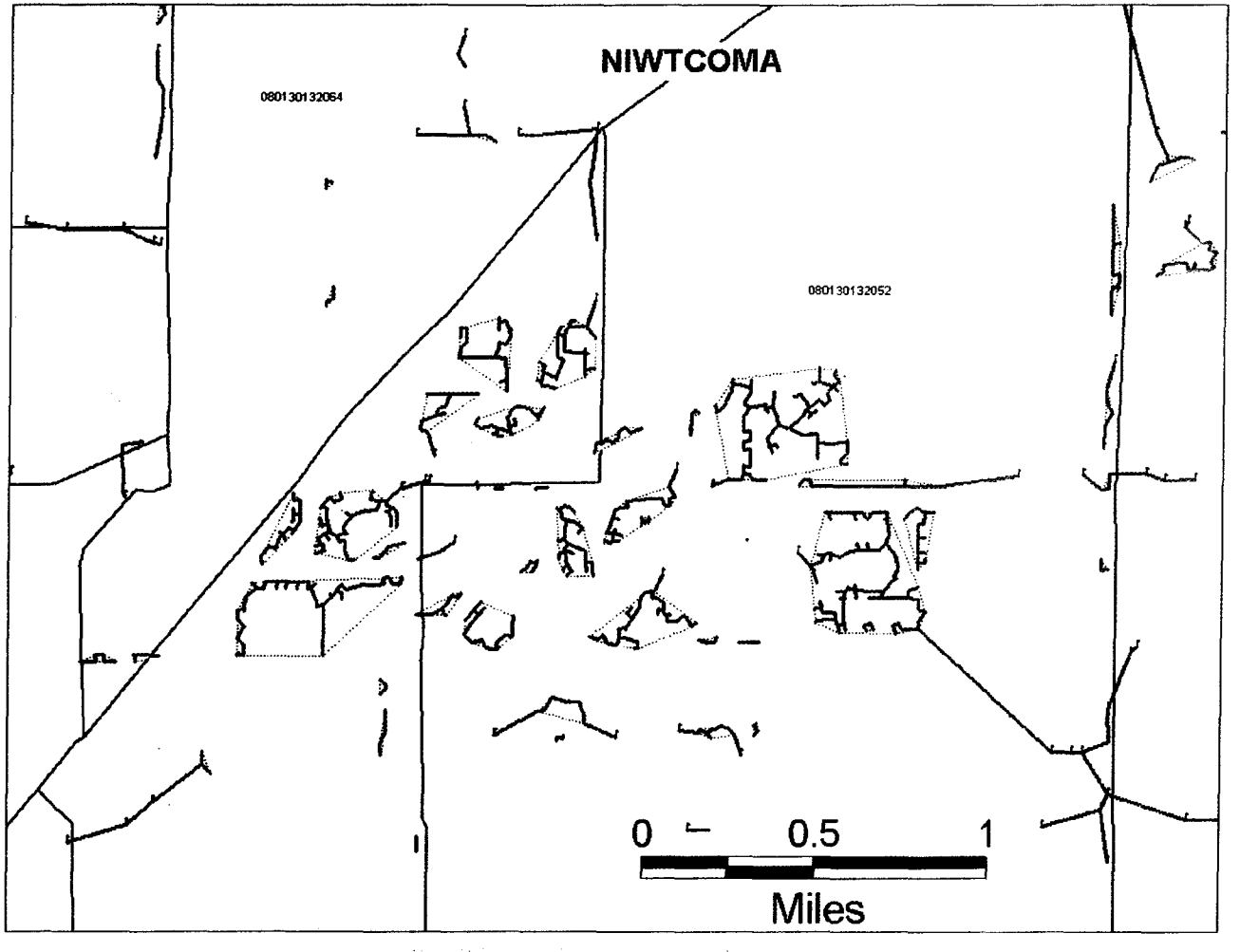
Phase 2 - Niwot, Colorado



Phase 2 - Advantages

- Direct "artificial intelligence" modeling of engineering layout based on customer locations
- Virtually eliminates uncertainty as to plant requirements needed to serve all areas